

REMARKS

RESPONSE TO ARGUMENTS SECTION

The Applicants note that the following rejections have been withdrawn:

- Claims 41-42, 44-46, 48-50 and 59-62 as rejected under 35 USC 102(b) as anticipated by Shingo et al. (JP 09-067518).
- Claims 41-46, 48, 51, 57, 59-60 and 63-64 as rejected under 35 USC 102(b) as anticipated by Ohkawa et al (US 4790968).
- Claims 41, 43-44 and 53-54 as rejected under 35 USC 102(b) as anticipated by Kang et al (US 5837119).
- Claim 55 as rejected under 35 USC 103(a) as obvious over Kang et al (US 5837119).
- Claims 41, 43, 51 and 63 as rejected under the judicially created doctrine of double patenting over claims 1, 11-12 and 18-20 of US 6673434.
- Claims 41 and 56 as rejected under the judicially created doctrine of double patenting over claims 1, 11-12, 15, 18-19, 20 and 22 of US 6797382.
- Claims 41, 43, 56 and 63 as rejected under the judicially created doctrine of double patenting over claims 1, 11-12, 15, 18-19, 20 and 22 of copending Application No. 10/715,719.

REJECTIONS MAINTAINED AND SEVERAL ADDITIONAL 102 REJECTIONS

US 4,118,102 (KUIST ET. AL)

US 5227093 (COLE ET AL.)

US 5890915 (REYLICK)

US 5348686 (VYAS)

Claims 41-42, 44-46, 59-61 are rejected under 35 USC §102(b) as being anticipated by Kuist et al. (US 4,118,102) herein after referred to as “KuiSt” and by Cole et al. (US 5227093). Claims 41-42, 44-46, 48, 52-54, 56-57 and 59-64 are rejected under 35 USC §102(b) as being anticipated by Reylick (US 5890915). Claims 41-42, 44-46, 48-49 and 59-61 are rejected under 35 USC §102(b) as being anticipated by Vyas (US 5348686). The Applicant respectfully disagrees, especially given the amendments presented herein.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof, wherein the interface material further comprises at least one wetting enhancer.” (emphasis added).

As cited by the Examiner, neither reference teaches nor discloses the use of wetting enhancers. Therefore, claim 41 is therefore allowable as not being anticipated by Kuist, Cole, Reylick and Vyas. Further, Kuist, Cole, Reylick and Vyas do not anticipate claims 42, 44-46 and 59-61 of the present application by virtue of their dependency on claim 41. In addition, claims 48, 52-54 and 56-57 are not anticipated by Reylick by virtue of their dependency on claim 41. Also, claims 48-49 are not anticipated by Vyas by virtue of their dependency on claim 41.

US 5,852,092 (NGUYEN)

Claims 41-46, 48-50 and 57-62 are rejected under 35 USC § 102(b) as being anticipated by Nguyen (US Issued Patent 5,852,092). The Applicant respectfully disagrees.

The Applicant herein submits the Declaration Under 37 USC § 1.132 previously submitted in the parent application that removes Nguyen as a prior art reference related to the present rejection. As mentioned in the Declaration:

- ✓ Honeywell International Inc. purchased Johnson Matthey Electronics, Inc. in August of 1999.
- ✓ Both the above-referenced application and US 5,852,092 were commonly owned by Honeywell International Inc. at the time the later invention was made even though the original assignee on US 5,852,092 was to Johnson Matthey, Inc.
- ✓ Both the above-referenced application and US Issued Patent No. 5,852,092 have a common inventor – My Nguyen.

Therefore, Nguyen cannot properly be considered a prior art reference by the Examiner, as based on the previous showing that the Nguyen reference and the current application are commonly owned at the time the later invention was made. Further, independent claim 41 and dependent claims 42-46, 48-50 and 57-62 are allowable as being patentable over Nguyen. The Applicant respectfully invites the Examiner to contact the undersigned Attorney-of-Record, if this issue remains unresolved by this Response.

35 USC §112

The claim rejections shown in the current Office Action have been reviewed and claim amendments are presented herein to comply with all of the Examiner's rejections regarding claims 45-49, 51 and 58. There is no new matter added by virtue of the amendments presented herein.

35 USC §102

Claims 41-43 and 56-64 are rejected under 35 USC 102(b) as being anticipated by Morgan (US 4931479). The Applicant respectfully disagrees.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof, wherein the interface material further comprises at least one wetting enhancer.” (emphasis added).

The Examiner contends that Morgan recites a compound with a wetting enhancer and points to Column 6, lines 23-27 of the reference as supporting evidence of this contention. This reference discusses in this section using surfactants to aid in controlling the cell structure, cell count, foam rise, foam height, resiliency and surface energy, i.e. hydrophobicity or hydrophilicity, of the foam. The reference goes on to say that suitable surfactants are silicone based surfactants. The present specification uses the following language to describe “wetting agents” or “wetting enhancers”:

It may also be advantageous to incorporate substantially spherical filler particles to maximize packing density. Additionally, substantially spherical shapes or the like will also provide some control of the thickness during compaction. Dispersion of filler particles can be facilitated by the addition of functional organo metallic coupling agents or wetting agents, such as organosilane, organotitanate, organozirconium, etc. The organo metallic coupling agents, especially organotitanate, may also be used to facilitate melting of the solder material during the application process. Typical particle sizes useful for fillers in the resin

material may be in the range of about 1-20 μm with a maximum of about 100 μm .

These wetting enhancers of the present application are not the same as the silicone-based surfactants in the Morgan reference. The Applicant also believes that one of ordinary skill in the art isn't going to read Morgan and reach the conclusion that the wetting agents in the present application and the surfactants in Morgan are the same compounds.

Therefore, claim 41 is allowable as not being anticipated by Morgan. In addition, claims 42-43 and 56-64 are also not anticipated by Morgan by virtue of their dependency on claim 41.

35 USC §103: THE KAWAMURA REFERENCE

Claims 43 and 49-51 are rejected under 35 USC 103(a) as being unpatentable over Reylick in view of Kawamura (US 5684110) and in the alternative over Vyas in view of Kawamura. The Applicant respectfully disagrees.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof, wherein the interface material further comprises at least one wetting enhancer.” (emphasis added).

The Examiner contends that Kawamura renders obvious the concept of adding a wetting enhancer to the formulations in Reylick or Vyas in order to arrive at the composition taught in the present application. The present specification uses the following language to describe “wetting agents” or “wetting enhancers”:

It may also be advantageous to incorporate substantially spherical filler particles to maximize packing density. Additionally, substantially spherical shapes or the like will also provide some control of the thickness during compaction. Dispersion of filler particles can be facilitated by the addition of functional organo metallic coupling agents or wetting agents, such as organosilane, organotitanate, organozirconium, etc. The organo metallic coupling agents, especially organotitanate, may also be used to facilitate melting of the solder material during the application process. Typical particle sizes useful for fillers in the resin material may be in the range of about 1-20 μm with a maximum of

about 100 μm .

Kawamura discusses adding organotitanium complexes to be used as catalysts. The Applicant does not understand the connection between organotitanium being used as a catalyst and the wetting agents of the present application. The Applicant respectfully requests the Examiner to review these rejections, reconsider them and if necessary, provide a more detailed explanation as to the connection. If there is no connection, then the Applicant respectfully asks that the Examiner withdraw these rejections.

Claim 55 is rejected under 35 USC 103(a) as being unpatentable over either Reylick or Vyas in view of Bosch. The Applicant respectfully disagrees. Claim 55 is ultimately dependent on claim 41.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof, wherein the interface material further comprises at least one wetting enhancer.” (emphasis added).

The Reylick, Vyas and Bosch references do not teach, disclose or suggest utilizing a wetting agent in their subject matter, and therefore, they cannot render unpatentable claim 41 of the present application. The same is true for claim 55 by virtue of its dependency on claim 41.

Claim 58 is rejected under 35 USC 103(a) as being unpatentable over either Reylick or Vyas in view of Morgan. The Applicant respectfully disagrees. Claim 58 is ultimately dependent on claim 41.

Claim 41 recites “an interface material for electronic devices comprising at least one compliant resin material and at least one solder material comprising indium, silver, copper, aluminum, tin, bismuth, gallium and alloys thereof, silver-coated copper, silver-coated aluminum and combinations thereof, wherein the interface material further comprises at least one wetting enhancer.” (emphasis added).

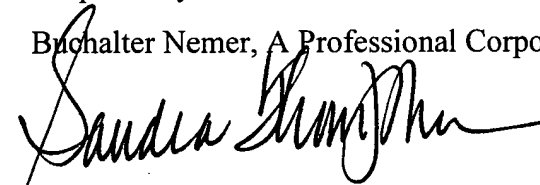
The Reylick, Vyas and Morgan references do not teach, disclose or suggest utilizing a wetting agent in their subject matter, and therefore, they cannot render unpatentable claim 41 of the present application. The same is true for claim 58 by virtue of its dependency on claim 41.

REQUEST FOR ALLOWANCE

Claims 41-42 and 44-64 are pending in this application, and the Applicant respectfully requests that the Examiner reconsider all of the claims in light of the arguments presented and allow all current and pending claims.

Respectfully submitted,

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